

APPENDIX D1

Brochure entitled "RT2210XL Radio
Data Terminal" (Six Sides)
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TOP SECRET - 6122600

The NORAND® RT2210XL Radio Data Terminal Puts the Power of Your Host Computer Where You Need it Most

The RT2210XL Radio Data Terminal from Norand is a wireless, interactive terminal which provides a new freedom in data collection and communication. The newly designed, ruggedized terminal extends the benefits of computerization by putting the power of your computer wherever you need it the most.

The terminal provides the link between your host computer and remote areas of your facility. The combination of data communications and two-way FM radio technology allows you to control transactions as they occur. The addition of high-speed bar code scanning gives you a real-time data collection system that delivers unsurpassed, bottom line results.

FEATURES:

- Lightweight, wireless portability with two-way, interactive data communication capabilities
- Compact, ruggedized design
- High performance radio providing optimum coverage for data communications
- High resolution display (64-character) with backlighting
- Bar code scanning support



The RT2210XL Has the Features You're Looking For

- **Wireless Portability**

Traditionally, the only access to a computer was from a hard-wired terminal station. As computers take on a greater portion of the inventory, accounting, and purchasing burden, the need to enter information into the host computer from remote areas of a facility becomes even more apparent. The RT2210XL gives you the portability that you need, while maintaining the data integrity of the hard-wired computer terminal.

- **High-Performance Data Radio**

The NORAND® RT2210XL uses a high-performance, second generation data communication radio, different from the radio devised for voice communications. The Norand radio is specially designed to optimize data transmission/reception. It performs where voice radios fail.

- **Two-Way Interactive Data Communications**

The RT2210XL Radio Data Terminal permits two-way data communications between the terminal and

the host computer. Whether it's providing lightning-fast price verification in a retail store or inventory updates in an industrial setting, interactive data communications deliver results.

- **Compact, Ruggedized Design**

The digital components, radio, a 39-key alphanumeric keyboard, and battery pack of the RT2210XL are housed in a compact, ruggedized package which fits in one hand. This lightweight unit weighs only 2 pounds (907g), making it ideal for operating hours without fatigue.

- **Liquid Crystal Display (64-Character)**

The user of the hand-held terminal can view up to 4 lines by 16 characters each on the 1 inch x 2.25 inch (2.54cm x 5.72cm) display. Features of the display include large, easy-to-read characters and four status indicators, allowing you to determine the terminal's state of operation at a glance. The display also incorporates back-lighting for low light environments or nighttime operation.



Ensuring pricing accuracy is one of the many advantages of using the RT2210XL Radio Data Network in the retail industry.

- **Bar Code Scanning Support**

The hand-held RT2210XL supports all major bar code symbologies and is designed to interface with a wide variety of bar code scanning devices. NORAND 20/20 CCD Bar Code Scanners, light pens, LS8110 Laser Scanners, as well as various third-party scanners are all supported by the standard RT2210XL.

An optional direct-laser scan feature is also available for 5-volt helium-neon laser and laser-diode scanners like our LS7000, LS8100, and LS8500 Laser Scanners (as well as compatible third-party scanners). This option eliminates the need for an external communication interface or power supply.

- **Available Options**

To meet individualized needs, several options are available to complement the RT2210XL's standard features. These options include:

- direct laser scanning capability.
- non-volatile memory.
- numeric keyboards (20-key).



Real-time inventory control in industrial environments can be accomplished quickly and easily using the NORAND® RT2210XL Radio Data Network.

Summary of NORAND® RT2210XL Radio Data Network System Features

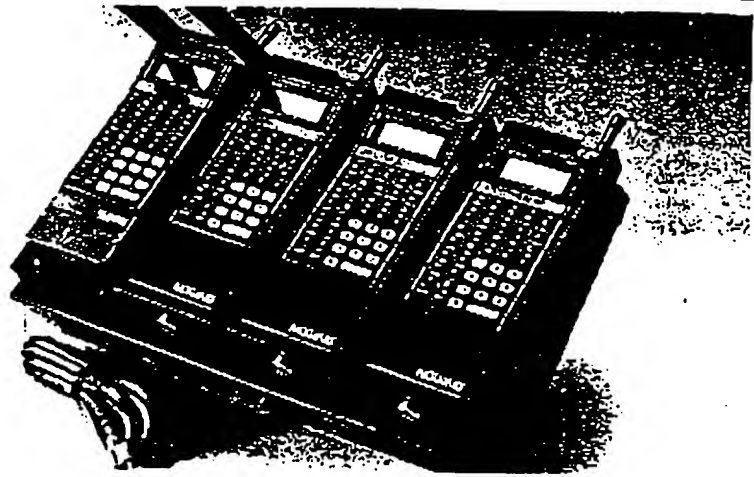
FEATURE	DESCRIPTION	ADVANTAGES
Single-unit integrated design	The two-way FM radio and the computer are built into a single-unit, lightweight design. The ruggedized RT2210XL requires no external communication interfaces or power supplies.	The RT2210XL goes easily to where data collection is required. Its small size and lightweight construction are perfect for extended, hand-held operation without fatigue. In addition, there are no tethering cables to get tangled.
Two-way interactive data communications	RT2210XL Radio Data Terminals provide instantaneous host computer access for data collection, update, and inquiry applications.	On-line computer power is available "where the action is." Personnel on the move can enter data at the source while having access to the host computer applications. Since the accuracy of data entries can be immediately verified by the host computer, errors are eliminated at the transaction level.
Nicad battery power supply	Rechargeable, nickel-cadmium battery packs provide reliable operating power for the RT2210XL.	No external power source is required. One battery pack can provide up to 10 hours of uninterrupted use. The battery packs are interchangeable and easy to replace.
High-performance digital data radio	A uniquely designed, high performance digital data radio is the backbone of the RF data communications network.	Utilizing a radio designed specifically for two-way, digital data communications means more reliability in areas where modified voice radios will fail. Reliable message reception and top performance make the RT2210XL RF design the industry standard in excellence and value.
Bar code scanning support	All major bar code symbologies are supported in the RT2210XL. The RT2210XL also supports a variety of bar code scanning devices including CCD scanners, light pens, direct laser, and diode laser scanners.	Use of the latest in bar code identification technology provides the fastest, most accurate method of data entry. Combining scanning technology with RF data communications provides the ultimate control over operations.
Built-in audio annunciator	A built-in audio alert system can be used to inform you of operational situations.	Audible feedback alerts the operator to take appropriate action or signals the operator of a completed operation. Various uses of this feature include inbound message reception, full buffer alert, improper data entry, and properly/improperly decoded bar code.
Buffer data storage	The RT2210XL has 8K-bytes of data storage where multiple prompts and data entries are retained until they can be accurately transmitted to the host computer.	Operators may review previous entries prior to sending the data to the host computer by scrolling through the data buffer.
Operational status indicators	Indicators at the bottom of the Liquid Crystal Display (LCD) inform the user of low battery condition, keyboard "shift" mode, radio transmission, and radio reception.	Provides the user with visual feedback of terminal operating conditions and indicates corrective action.
LCD with backlighting	The LCD displays 64 characters on a 4-line screen. The high resolution provides an easy-to-read format from a wide viewing angle. The display also contains an electroluminescent panel for evenly distributed backlighting of the display.	Operators have a high-contrast, easy-to-read display that minimizes eye fatigue. The backlighting feature allows for operation in dark areas, common in many applications.
Optional direct-connect laser scanning	Popular non-contact laser scanners can be connected directly to the RT2210XL.	This option eliminates the need for costly and cumbersome external interfaces and power supplies.
Built-in diagnostic self-test	Built-in self-test is initiated any time the unit is powered-up. The self-test verifies proper operation of the microprocessor, memory, and input/output circuits.	When the unit is initially powered-up, the self-test provides the operator with a high degree of confidence the unit is operating properly.
Supports several communications protocols	In addition to our own standard ASYNC protocol, the RT2210XL can support SNA/SDLC protocol.	Allows fast implementation and greater compatibility in IBM 3270 and System 36/38 environments.

NORAND® RT2210XL Accessories for Ease and Flexibility of Use

Norand offers accessories to support the RT2210XL Radio Data Terminal. Each accessory is designed to make the RT2210XL easier to implement and use. Select the accessories to help you in your special environment or situation.

- **Battery Chargers**

Several battery charging options are available from Norand. You can rejuvenate the battery pack of your RT2210XL by using the NC120 Single Unit Charger, or the NC146 Quad Lockbox for multiple unit, simultaneous charge.



The NC146 Quad Lockbox Charger

- **Vehicle Mount**

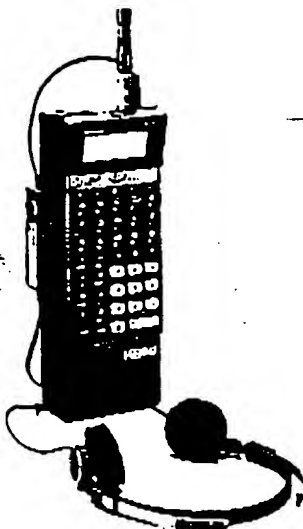
A rugged material-handling vehicle mount secures your RT2210XL when in use on a forklift truck. The mount can be installed to provide optimum accessibility for your operator and adjusts to varying angles for easy keystroke entry. The terminal slides quickly and easily out of the vehicle mount for hand-held terminal operation away from the forklift truck. A cradle on the side of the mount provides the sturdy base for supporting your scanner when not in use.



Vehicle Mount

- **Audio Headphones**

The headphones for the RT2210XL are engineered for use in obtrusive, ambient audio situations. An audio jack (next to the radio antenna mount) provides the interconnection for the headphones. Audible signals signify a properly or improperly decoded bar code symbol. The user is also alerted when new data is received from the host computer.



Audio Headphones

- **Leather Carrying Cases**

Durable leather carrying cases are available for the RT2210XL and a wide variety of scanners on the market. The heavy-grade, leather construction provides a practical accessory for your RT2210XL Radio Data Network.

The leather carrying case for the RT2210XL can be worn across the shoulder or attached to a belt or holster for user versatility. An adjustable lock on the holster allows you to position your hand-held terminal in a variety of angles (positions) for ease of use and accessibility. Attachments for the holster are available for virtually any scanner or light pen.

Real-Time, On-Line Communications with the NORAND® RT2210XL and the Radio Data Network System

To fully appreciate the features and benefits of the RT2210XL, it is important to understand how the hand-held terminal integrates into the Radio Data Network. The RT2210XL operates under the control of your host computer. All terminal commands are initiated by the host computer, which communicates directly with a network communications multiplexer or controller.

The multiplexer or controller handles the timing, protocol, and data buffering between the host computer and the RT2210XL Radio Data Terminals from Norand. When a terminal command is received from the host computer, the multiplexer (or controller) converts the command into the

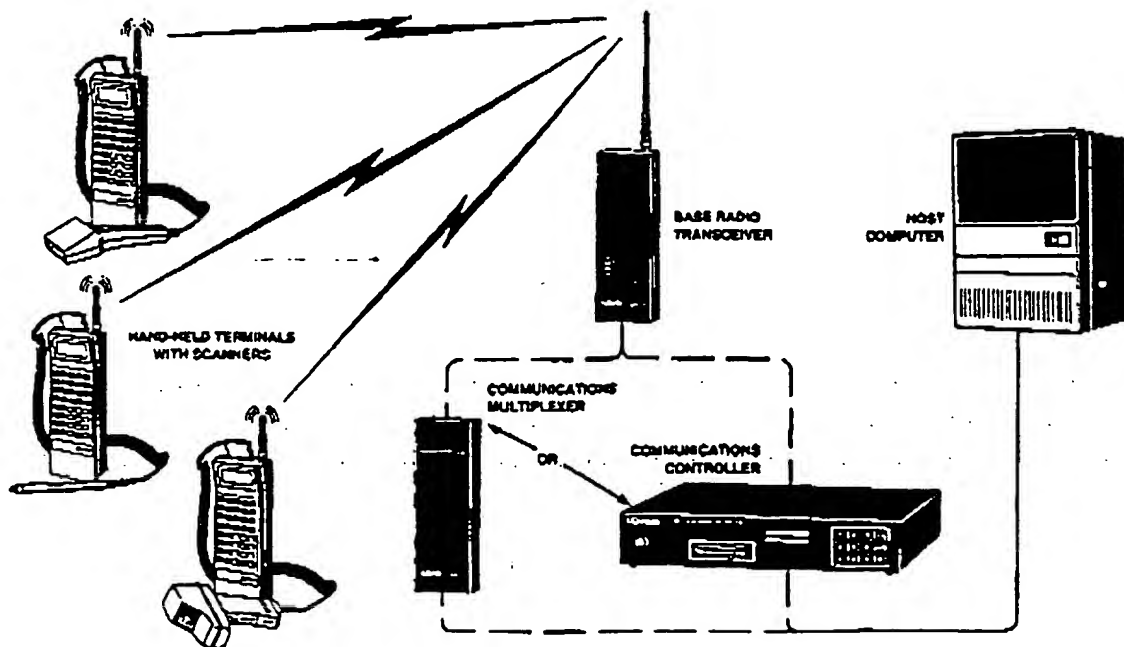
RT2210XL format, and transmits the command to the base radio transceiver. The base radio, utilizing the same high-performance radio used in the RT2210XL, transmits the commands on to the terminal.

The RT2210XL receives the host command from the base radio transceiver. This enables the use of either the terminal's keyboard, a bar code scanner, or both. Once the desired data has been entered, it is then transmitted back to the multiplexer (or controller) via the base radio transceiver. The multiplexer (or controller) then converts the information back into the host computer format and instantaneously transmits the data to the host computer.

All application software for the RT2210XL resides in the host computer and can be written in any programming language. The need for special development systems is eliminated, allowing for faster program implementation. In many cases, just a few simple command codes need to be added. This results in ease of system maintenance and allows you the freedom to upgrade.

Norand has radio networks available which utilize ASYNC and SNA/SDLC protocols including IBM®3270 emulation and System 36/38 compatibility. This host programming flexibility translates to a fast, cost-effective implementation.

RT2210XL Radio Network Data Flow



RT2210XL Radio Data Terminal

SPECIFICATIONS

Product Features:

Transceiver: Incorporates a 2 watt (UHF) frequency modulated (FM) radio transceiver controlled by the microprocessor. Type accepted per FCC Rules & Regulations, Part 90, Private Land Mobile Radio Service

Liquid Crystal Display (LCD): 64-character, dot matrix LCD configured as 4 lines x 16 characters with four status indicators

Audio Alert: An audible buzzer is activated under host control

Annunciators: Four LCD annunciators indicate low battery, shift mode, radio transmitting, and radio receiving

Keyboard: 39-key (optional 20-key) tactile feel

Self-Diagnostics: Self-diagnostics performed on power-up on all memory and input/output circuitry

Backlighting: LCD is backlit using an electroluminescent panel

Static Shock Protection: Terminal is hardened against electrostatic discharge up to 16,000 volts

Shielding: Conforms to FCC Part 15 for Class A computing devices

Interface: 15-pin D connector

Hand Strap: Elastic strap (on back of terminal) secures terminal firmly in hand

Device Features:

Microprocessor: A CMOS microprocessor has been selected for its processing ability and low power consumption

Network Address Switch: User can set the terminal's address by use of a rotary switch. Device is not used on terminals with non-volatile RAM

Non-Volatile RAM (optional): Provides data protection for the RAM buffer even when the terminal is turned off or the battery pack is removed

Physical Dimensions:

Size: 9.4" x 3.4" x 1.8" (LWD)
(23.9cm x 8.6cm x 4.6cm)

Weight: 2 pounds (907g)

Environmental Characteristics:

Temperature:

Operating: 14° to 120°F (-10° to 50°C)

Storage: -4° to 140°F (-20° to 60°C)

Recharging: 40° to 104°F (5° to 40°C)

Humidity: 0 to 90% noncondensing

Altitude: To 10,000 feet (3,048 meters) above sea level

Internal Power Source:

Battery Cells: Nickel-cadmium batteries

Operating Time From Batteries: 10 hours typical, based on customer usage without scanner and backlighting

RT2210XL Battery Pack Characteristics:

Normal Recharge: A recharge cycle is completed in 13 hours

Standby Holding Charge: Maintains the batteries at full charge by supplying a trickle charge rate

Low Battery Indicator: Visual annunciator indicating low battery is displayed

Charging Sources: AC adapter-type battery charger or quad (4-unit) charger lockbox

Radio Characteristics:

Radiated Power: 2 watts

Frequency Range: 450 to 470 MHz and 406 to 420 MHz

Antenna: 2 inches (5.1cm) stub

Data Rate: 4800 baud

Modulation: NRZ CPFM

Bar Code Scanning Support:

NORAND® 20/20 CCD Bar Code Scanners
Laser Scanners (HeNe and Laser Diode)
Pen Wands

Bar Code Symbolologies Supported:

UPC/EAN, UPC/EAN with add-ons, Code 11, Code 39, Extended Code 39, Code 93, Code 128, Interleaved 2 of 5, Plessey, Codabar, ABC Codabar, Straight 2 of 5, and Computer Identities 2 of 5

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